**WHAT WE CLAIM IS:**

1. An antenna arrangement comprising a first layer consisting of a dielectric material and a second reflective layer, wherein said dielectric material has variable dielectric characteristics and said first layer is arranged so that an electromagnetic radiation passing through said first layer and at least partly reflected by said second layer is modulated by varying said variable dielectric characteristics of said first layer.

2. The antenna arrangement of claim 1, wherein said antenna arrangement further comprises a first electrode layer and a second electrode layer.

3. The antenna arrangement of claim 1, wherein said antenna arrangement further comprises a third layer and a third electrode layer.

4. The antenna arrangement according to claim 2, wherein said first layer is a plate made of an electrically tunable dielectric material.

5. The antenna arrangement of claim 4, wherein said plate consists of one of ferroelectrics, ceramics, polymers or crystallines.

6. The antenna arrangement of claim 2, wherein said first and second electrode layers are made of a material transparent to said electromagnetic radiation.

7. The antenna arrangement of claim 2, wherein said first and second electrode layers are arranged on opposite sides of said first layer.

8. The antenna arrangement of claim 2, wherein said first and second electrode layers are arranged inside said first layer.

9. The antenna arrangement of claim 7, wherein a modulation signal is applied to said first and second electrode layers to changes said variable dielectric characteristics of said first layer.

10. The antenna arrangement of claim 3, wherein said second layer is a plate arranged as an electromagnetic radiation sensor.

11. The antenna arrangement of claim 10, wherein said second layer at one side is provided with said second layer being a non-transparent electrode layer and at an opposite side with said third electrode layer being a transparent electrode layer.

12. The antenna arrangement according to claim 2, wherein said second layer has a larger thickness than said first and second electrode layers.

13. The antenna arrangement of claim 2, wherein said third layer consists of a semiconductor plate arranged with an Schottky barrier.

14. The antenna arrangement of claim 13, wherein said third layer is arranged to transform said incident electromagnetic radiation into low frequency or DC electric signals.

15. The antenna arrangement of claim 14, wherein said signal is extracted from said second layer and third electrode layer.

16. The antenna arrangement according to claim 2, wherein said first electrode layer consists of conductive strips.

17. The antenna arrangement according to claim 2, wherein said first and second electrode layers consist of grids of electrodes comprising thin wire electrodes imbedded in said first dielectric layer.

18. The antenna arrangement according to claim 1, said first layer is a dielectric plate mechanically attached to said second layer consisting of a metallic layer.

19. The antenna arrangement according to claim 18, wherein said plate is sensitive to

temperature and/or mechanical pressure.

20. The antenna arrangement according to claim 19, wherein temperature variations vary said dielectric characteristics of said plate.

21. The antenna arrangement according to claim 19, wherein change of said dielectric characteristics is exerted through mechanical actuation.

22. The antenna arrangement according to claim 21, wherein said mechanical tension is produced by applying alternating forces on said plate or a frontal plate in communication with said plate.

23. The antenna arrangement according to claim 2, wherein said antenna arrangement comprises a frontal layer, which is arranged to couple electromagnetic radiation into and out of said first layer.

24. The antenna arrangement according to claim 23, wherein said frontal plate has a thickness of:

$$\frac{\lambda}{4\sqrt{\varepsilon_2}},$$

where $\varepsilon_2 = \sqrt{\varepsilon_1}$ is the dielectric constant of a said second layer, and $\epsilon_1$ is the dielectric constant of said first layer.

25. A communication arrangement for receiving, modulating and transmitting electromagnetic radiation, wherein said arrangement comprises a communication module, a transmitter/transceiver, and a receiver, said communication module comprising an antenna arrangement comprising a first layer consisting of a dielectric material and a second reflective layer, said dielectric material having a variable dielectric characteristics and an electromagnetic radiation passing through said first layer and at least partly reflected by said second layer is modulated by varying said variable dielectric characteristics of said first layer due to output signals from said electric module.

26. The communication arrangement of claim 25, wherein said communications module mainly comprises an electronic module, a microwave sensor, said antenna arrangement and a power supply unit.

27. The communication arrangement of claim 26, wherein said electrical unit is arranged to generate low frequency modulation signals.

28. The communication arrangement of claim 26, wherein said microwave sensor transforms an incoming electromagnetic radiation signal into low frequency or DC (direct Current) electric signals and transmits the signals to the electronic module.

29. The communication arrangement according to claim 25, wherein said electromagnetic radiation is a carrier wave.

30. In an antenna arrangement comprising a first layer consisting of a dielectric material and a second reflective layer, a method of modulating an incident electromagnetic radiation, wherein arranging said dielectric material with a variable dielectric characteristics and modulating said electromagnetic radiation passing through said first layer and at least partly being reflected by said second layer by varying said variable dielectric characteristics of said first layer.